

## WHAT IS CLAIMED IS:

1. A process for producing a fluorine-containing compound from a halogen-containing starting material, said process comprising effecting halogen-fluorine exchange or addition of HF to a C-C multiple bond in the presence of a catalyst or fluorination agent comprising an HF adduct of a monocyclic or bicyclic amine containing at least two nitrogen atoms, wherein at least one nitrogen atom is incorporated into the ring system.
2. A process according to claim 1, wherein said halogen-containing starting material is a chlorine-containing compound.
3. A process according to claim 1, wherein the HF adduct is an adduct of a monocyclic or bicyclic compound containing just two nitrogen atoms.
4. A process according to claim 1, wherein the monocyclic or bicyclic amine is selected from the group consisting of amino-substituted pyridines and bicyclic amines.
5. A process according to claim 4, wherein the monocyclic or bicyclic amine is selected from the group consisting of diazabicyclononane, diazabicycloundecane and dialkylaminopyridine.
6. A process according to claim 1, wherein the halogen containing starting material is an organic or inorganic acid chloride, and a corresponding acid fluoride is produced.
7. A process according to claim 6, wherein sulfonyl chlorofluoride or sulfonyl fluoride is produced.

8. A process according to claim 1, wherein the starting material is a compound containing chlorine and having a C-Cl bond, and a compound containing fluorine and having a C-F bond is produced.

9. A process according to claim 8, wherein a carbon or hydrocarbon compound containing fluorine is produced.

10. A process according to claim 8, wherein a fluorine-containing carboxylic acid derivative is produced.

11. A process according to claim 10, wherein the fluorine-containing carboxylic acid derivative is a carboxylic acid fluoride.

12. A process according to claim 10, wherein an alkylene- bridged dicarboxylic acid derivative substituted in the alkylene bridge by at least one fluorine atom is produced.

13. A process according to claim 12, wherein a monofluoro or difluoro malonic acid ester is produced.

14. A process according to claim 1, wherein the HF adduct of the monocyclic or bicyclic compound is used as a catalyst, and hydrogen fluoride is used as a fluorination agent.

15. A process according to claim 1, further comprising reconditioning spent HF adducts of the monocyclic or bicyclic compound using hydrogen fluoride.

16. A process according to claim 1, wherein at least one organic product compound having at least one fluorine atom substituent is produced, thereby resulting in a mixture of amine-HF adduct and fluorine-

substituted product compound, said method further comprising adding a solvent to said mixture which causes two liquid phases to form, wherein one of the two phases contains the solvent and the at least one organic product compound, and the other phase contains the amine-HF adduct.

17. An HF adduct of an amine selected from the group consisting of 1,5-diazabicyclo[4.3.0]non-5-ene; N,N-di(C<sub>1</sub>-C<sub>4</sub>)alkylaminopyridine, and 1,8-diazabicyclo[5.4.0]undec-7-ene, wherein the molar ratio of HF to the amine is equal to 1 or greater than 1:1.

18. An adduct according to claim 17, wherein the molar ratio of HF to the amine is greater than 1:1.

19. An adduct according to claim 18, wherein the molar ration of HF to the amine is less than or equal to 9.

20. An adduct according to claim 17, wherein the amine is N,N-dimethylaminopyridine.